REMARKS

The Office Action of October 18, 2006 has been carefully reviewed and the rejection of claims 1-8, 10, 11, and 13-15 under 35 U.S.C. §103(a), in light of the combination of Hallenbeck, Kogure, Giannini, and Rahamim, is respectfully traversed.

Hallenbeck does teach an "intrinsically safe" isolator. But as noted by the Examiner, Hallenbeck does not teach some of the elements of independent claim 1. Generally, Hallenbeck does not teach an isolator for high speed (megahertz) communication data, but instead a circuit for isolating a DC power supply that cannot be used, and is not intended, for the communication of data. Also, Hallenbeck does not provide impedance matching elements (impedance matching does not make sense for a DC power supply), nor a DC blocking element (which would prevent Hallenbeck from transmitting DC power, its intended purpose). Hallenbeck also does not teach a bipolar shunt between conductor pairs as claimed.

Some of these missing elements of Hallenbeck seem to be found in the circuit of Giannini, however, Giannini is not an intrinsically safe isolator. "Intrinsically safe" is a term of art that is defined in the present application and in a number of electrical codes including the National Electrical Code. Underwriter's Laboratory, among others, certify equipment to the "intrinsic safety" standard. See paragraph [0008] of the present application. As noted at paragraph [0007] of the present application, "intrinsically safe" equipment limits the electrical energy to a level that avoids the occurrence of sparks with sufficient energy to ignite a flammable atmosphere during a fault condition or create surface temperatures above those needed to cause spontaneous ignition.

Thus, "intrinsically safe" does not simply refer to a general aspect of safety or accommodation of electrical faults, but to equipment that can function with specific low power output levels. Importantly, a circuit that is not expressly indicated to be "intrinsically safe", would not be assumed to be suitable for intrinsically safe operation even with extensive modification.

It is important in this regard that Giannini describes a circuit that is connected directly to high voltage transmission lines ranging from 69 kilovolts (kV) to in excess of 800 kV. It is apparent that this circuit is not intended for use in environments where small sparks could ignite

flammable gases. For this reason, the combination Hallenbeck and Giannini cannot be supported with out strong express teachings for the combination because a person of ordinary skill in the art trying to build a circuit that ensures intrinsic safety would not look toward Giannini nor would they find in Giannini any teachings that the circuit elements of Giannini are suitable for intrinsically safe operation.

To the contrary, a person of ordinary skill in the art would assume that Giannini accommodates megahertz communication speeds by using powerful signals sufficient to overcome the interference found on 800 kV high tension wiring, and that this power level would be far too high to be intrinsically safe. Giannini by its extreme environment, teaches away from any suggestion that a passive isolator per the present invention could accommodate low signal levels that avoid the ignition of flammable gases.

To the extent that Giannini teaches isolated elements of the present claims, Giannini teaches that these elements are optional or for a different purpose. For example, the bipolar shunt described by Giannini is clearly indicated to be optional because it is not shown in the principle embodiment of Fig. 6 but mentioned only as an optional embodiment. Giannini teaches a blocking capacitor, but not to block DC current (per the present invention) because this is unnecessary in Giannini which has a DC blocking transformer. Instead, in Giannini, the capacitor is used to block 60 cycle power line signals, something that would never be present in the present invention.

The Applicant does not contend that the individual circuit elements used in the present invention are novel. Blocking capacitors, impedance matching elements, and even the bipolar shunting element can be found for other purposes in other devices. But without the recognition that these circuit elements can be sized and connected, as claimed, to produce intrinsic safe operation of a megahertz communication link, there can be no teaching suggestion of the invention. It is important to note that the Giannini circuit is not inherently "intrinsically safe". Absent recognition that these circuit elements might be modified for use in an intrinsically safe environment, the appropriate component values would not be selected and/or the circuit would not be tried in this application.

Combining Hallenbeck with Giannini still fails to enable a circuit for intrinsically safe

operation in the transmission of megahertz signals. As noted in paragraph [0055], the current invention does not simply use a pair of opposed Zener diodes (described as optional in Giannini) rather each of the Zener diodes is compensated by a standard diode whose selection may be "critical to proper high-speed performance of the transmission line". See paragraph [0055] and claim 6 of the present application. It is no more than speculation by the Examiner that the combination proposed by the Examiner would function to provide intrinsically safe operation. Applicant believes that a person of ordinary skill in the art following the teachings of Giannini and Hallenbeck would not fairly be guided to how to produce a functional intrinsically safe isolator for megahertz signals.

The remaining references fail to remedy the deficiencies of Hallenbeck when Giannini is eliminated. Kogure is cited as teaching impedance matching networks, however, Applicant cannot find any reference to impedance matching in Kogure nor elements that would seem to provide this function. Nor does Kogure seem to be suitable for megahertz data transmission--clearly showing in Figs. 8 and 9 frequency transmissions at less than 50 kHz. Clearly Kogure does not teach a blocking DC capacitor because Kogure is expressly intended to transmit DC power which would be blocked by such a capacitor. Finally, Kogure does not teach the bipolar shunt mechanism required by the claims.

Rahamim like Giannini does not describe a system to provide intrinsically safe megahertz communication. While Rahamim does teach a blocking capacitor, at least schematically, there is insufficient suggestion or teaching as to how Rahamim might be modified for intrinsically safe operation. At a minimum, Rahamim would need to also teach the bipolar shunt, the matching network, and the fusible link of the present invention and provide some suggestion that this approach might be suitable for an intrinsically safe environment where power transmission is severely limited.

Thus it is believed that Rahamim like Giannini is not properly combinable with the intrinsically safe prior art of Hallenbeck. Further, the combination of Hallenbeck and Kogure fail to teach the claimed elements of at least independent claim 1 as previously amended.

In light of these remarks and amendments, it is now believed that Claims 1-8 and 10-15 are now in condition for allowance and allowance is respectfully requested.

Respectfully submitted,

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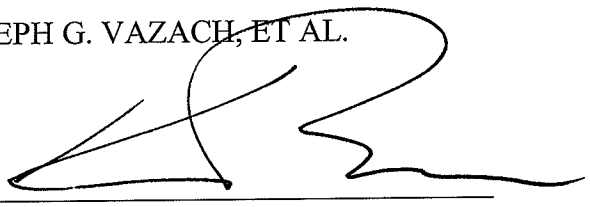
By: 

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